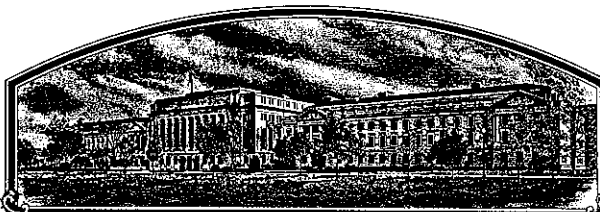


No.

8300161



THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Nickerson American Plant Breeders, Inc.

Whereas, THERE HAS BEEN PRESENTED TO THE
Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF *eighteen* YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS OF CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS BY THE OWNER OF THE RIGHTS. (34 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

WHEAT

'HR 64'



Attest:

Rosetta H. ...
Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

In Testimony Whereof, I have hereunto set
my hand and caused the seal of the Plant
Variety Protection Office to be affixed
at the City of Washington, D.C.
this 28th day of February in
the year of our Lord one thousand nine
hundred and eighty-six.

F. W. Taylor
Acting Secretary of Agriculture

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK, POULTRY, GRAIN & SEED DIVISION

FORM APPROVED
OMB NO. 40-R3822

No certificate for plant variety protection may be issued unless a completed application form has been received (5 U.S.C. 553).

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

INSTRUCTIONS: See Reverse.

1a. TEMPORARY DESIGNATION OF VARIETY HW77-355B & NAPB 204		1b. VARIETY NAME HR 64		FOR OFFICIAL USE ONLY PV NUMBER 8300161	
2. KIND NAME Hard Red Winter Wheat		3. GENUS AND SPECIES NAME Triticum aestivum		FILING DATE 7/28/83	TIME 8:30 A.M.
4. FAMILY NAME (BOTANICAL) Gramineae		5. DATE OF DETERMINATION 1=Sept. 1979 2=Sept. 1980		FEE RECEIVED \$ 1,000	DATE 7/28/83
6. NAME OF APPLICANT(S) NICKERSON North American Plant Breeders, Inc.		7. ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code) 5201 Johnson Drive, P.O. Box 2955 Mission, KS 66201		8. TELEPHONE AREA CODE AND NUMBER 913-384-4940 KS 303-532-3721 CO	
9. IF THE NAMED APPLICANT IS NOT A PERSON, FORM OF ORGANIZATION: (Corporation, partnership, association, etc.) Corporation		10. IF INCORPORATED, GIVE STATE AND DATE OF INCORPORATION Delaware, January 19, 1983		11. DATE OF INCORPORATION January 19, 1983	
12. NAME AND MAILING ADDRESS OF APPLICANT REPRESENTATIVE(S) IF ANY TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS: R.E. HEINER G.E. DIXON P.O. Box 2955 Mission, KS 66201 ROBERT E. BRUNS P.O. Box 30 Berthoud, CO 80513					

13. CHECK BOX BELOW FOR EACH ATTACHMENT SUBMITTED:

☒ 13A. Exhibit A, Origin and Breeding History of the Variety (See Section 52 of the Plant Variety Protection Act.)

☒ 13B. Exhibit B, Novelty Statement.

☒ 13C. Exhibit C, Objective Description of the Variety (Request form from Plant Variety Protection Office.)

☒ 13D. Exhibit D, Additional Description of the Variety.

☒ 13E. Exhibit E., Quality data and Statistical data.

14a. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? (See Section 83(a). (If "Yes," answer 14B and 14C below.) ☒ YES ☐ NO

14b. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? ☒ YES ☐ NO

14c. IF "YES," TO 14B, HOW MANY GENERATIONS OF PRODUCTION BEYOND BREEDER SEED? ☒ FOUNDATION ☒ REGISTERED ☒ CERTIFIED

15a. DID THE APPLICANT(S) FILE FOR PROTECTION OF THIS VARIETY IN OTHER COUNTRIES? ☐ YES ☒ NO (If "Yes," give name of countries and dates.)

15b. HAVE RIGHTS BEEN GRANTED THIS VARIETY IN OTHER COUNTRIES? ☐ YES ☒ NO (If "Yes," give name of countries and dates.)

16. DOES THE APPLICANT(S) AGREE TO THE PUBLICATION OF HIS/HER (THEIR) NAME(S) AND ADDRESS IN THE OFFICIAL JOURNAL? ☒ YES ☐ NO

17. The applicant(s) declare(s) that a viable sample of basic seed of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

May 18, 1983
(DATE)

Robert E. Heiner
(SIGNATURE OF APPLICANT)

May 31, 1983
(DATE)

G.E. Dixon
(SIGNATURE OF APPLICANT)

Exhibit A

Origin and Breeding History of HR 64

PEDIGREE: II18889/Tapper/C0652643/3/Sonora/Trapper//Warrior

DATE OF CROSS: 1973

HISTORY: The breeding history of HR 64 started in 1973 with the cross of C0701411 (F₆) with C0695461 (F₆). This F₁ was increased in 1974, and grown as an F₂ population in 1975. Single rows of F₃ lines were grown in 1976 at 3 locations. One of these lines was advanced to yield trials in 1977. This line was given the testing designation HW77-355. In 1979, 300 head-rows were grown in Berthoud, Colorado for purification purposes. There were two distinctly different plant colors in this population. The majority type was a steel blue-green color and the minority was a dark green. Eleven of the dark green types were selected and bulked together to form HW77-355B. This bulk was put directly into full regional yield testing. In 1980, 100 head-rows were grown. Bulk seed of these head-rows was planted on two acres in 1981. This represents the original Breeder seed increase. In 1981, the HW77-355B designation was changed to NAPB 204 and it was put into full regional USDA testing. In 1982, NAPB 204 was purchased by Garst Seed Co. and given its final variety designation of HR 64.

Est as per
letter dated
12/3/85

HR 64 is uniform and stable. Less than 1% of the plants were rogued from the Foundation fields in 1982. Approximately 90% of these rogued plants were three to twelve centimeters taller than HR 64. Less than 1% of these taller plants may be encountered in subsequent generations.

Exhibit B

Novelty Statement

HR 64 is most similar to the hard red winter wheat Vona. However, it can be distinguished on the following morphological characteristics:

- HR 64 and Vona differ significantly in beak length (see Exhibit ~~X~~_B, page 2).
- HR 64 is a later maturing variety than Vona (see Exhibit ~~X~~_B, page 3).

26
12/5/85

26
12/5/85

ANOVA TABLE

Beak Lengths of HR 64 and Vona

HR 64 mean = 6.77 mm
Vona mean = 3.64 mm

Source	df	SS	MS
Total	209	1670.28	
VAR (beak)	6	756.05	126.01**
Error	203	914.23	4.50

F test = 28.00

LSD (.05) = 1.08

** Significant at the .01 level.

Anova Table for Maturity

HR 64 versus Vona

<u>Source</u>	<u>df</u>	<u>ss</u>	<u>ms</u>
Total	71	66.0	
LOC	3	6.8	2.27
VAR	17	62.5	3.68 **
Error	51	16.7	.33

F test = 11.15**

	<u>mean</u>	<u>1/</u>
HR 64	3.5	5.5
Vona	5.5	3.5

LSD (.01) = 1.09
LSD (.05) = .82

There is a significant difference between HR 64 and Vona at the 5% level.

1/ Based on a rating from 1 thru 9 with 1 representing the earliest maturity and 9 representing the latest maturity.

** Significant at the .01 level.

205 as per letter and attachment dated 12/5/85

FORM GR-470-6
(2-15-73)UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
GRAIN DIVISION
HYATTSVILLE, MARYLAND 20782EXHIBIT C
(Wheat)OBJECTIVE DESCRIPTION OF VARIETY
WHEAT (TRITICUM SPP.)

INSTRUCTIONS: See Reverse.

NAME OF APPLICANT(S)

NICKERSON North American Plant Breeders, Inc.

ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code)

5201 Johnson Drive, P.O. Box 2955
Mission, KS 66201

FOR OFFICIAL USE ONLY

PVPO NUMBER 8300161

VARIETY NAME OR TEMPORARY
DESIGNATION

HR 64

12/23/85

Place the appropriate number that describes the varietal character of this variety in the boxes below.
Place a zero in first box (e.g., or) when number is either 99 or less or 9 or less.

1. KIND:

 1 = COMMON 2 = DURUM 3 = EMMER 4 = SPELT 5 = POLISH 6 = POULARD 7 = CLUB

2. TYPE:

 1 = SPRING 2 = WINTER 3 = OTHER (Specify) 1 = SOFT 3 = OTHER (Specify)
2 = HARD 1 = WHITE 2 = RED 3 = OTHER (Specify)3. SEASON - NUMBER OF DAYS FROM FIRST FLOWERING TO: LAST FLOWERING

4. MATURITY (50% Flowering):

 NO. OF DAYS EARLIER THAN 1 = ARTHUR 2 = SCOUT 3 = CHRIS
4 = LEMHI 5 = NUGAINES 6 = LEEDS

5. PLANT HEIGHT (From soil level to top of head):

 CM. HIGH
 CM. SHORTER THAN 1 = ARTHUR 2 = SCOUT 3 = CHRIS
4 = LEMHI 5 = NUGAINES 6 = LEEDS

6. PLANT COLOR AT BOOTING (See reverse):

 1 = YELLOW GREEN 2 = GREEN 3 = BLUE GREEN

7. ANTHUR COLOR:

 1 = YELLOW 2 = PURPLE

8. STEM:

 Anthocyanin: 1 = ABSENT 2 = PRESENT Waxy bloom: 1 = ABSENT 2 = PRESENT Hairiness of last internode of rachis: 1 = ABSENT 2 = PRESENT Internodes: 1 = HOLLOW 2 = SOLID NO. OF NODES (Originating from node above ground) CM. INTERNODE LENGTH BETWEEN FLAG LEAF AND LEAF BELOW

9. AURICLES:

 Anthocyanin: 1 = ABSENT 2 = PRESENT Hairiness: 1 = ABSENT 2 = PRESENT

10. LEAF:

 Flag leaf at booting stage: 1 = ERECT 2 = RECURVED
3 = OTHER (Specify): Flag leaf: 1 = NOT TWISTED 2 = TWISTED Hairs of first leaf sheath: 1 = ABSENT 2 = PRESENT Waxy bloom of flag leaf sheath: 1 = ABSENT 2 = PRESENT MM. LEAF WIDTH (First leaf below flag leaf) CM. LEAF LENGTH (First leaf below flag leaf)

FORM GR-470-6 (REVERSE)

11. HEAD:

☐ 3 Density: 1 = LAX 2 = DENSE 3 = Middense ☐ 1 Shape: 1 = TAPERING 2 = STRAP 3 = CLAVATE
4 = OTHER (Specify) _____

☐ 4 Awnedness: 1 = AWNLESS 2 = APICALLY AWNLETED 3 = AWNLETED 4 = AWNED

☐ 1 Color at maturity: 1 = WHITE 2 = YELLOW 3 = PINK 4 = RED
5 = BROWN 6 = BLACK 7 = OTHER (Specify) _____

☐ 0 ☐ 7 CM. LENGTH ☐ 1 ☐ 0 MM. WIDTH

12. GLUMES AT MATURITY:

☐ 1 Length: 1 = SHORT (CA. 7 mm.) 2 = MEDIUM (CA. 8 mm.) 3 = LONG (CA. 9 mm.)
☐ 2 Width: 1 = NARROW (CA. 3 mm.) 2 = MEDIUM (CA. 3.5 mm.)
3 = WIDE (CA. 4 mm.)

☐ 2 Shoulder: 1 = WANTING 2 = OBLIQUE 3 = ROUNDED
shape: 4 = SQUARE 5 = ELEVATED 6 = APICULATE

☐ 3 Beak: 1 = OBTUSE 2 = ACUTE 3 = ACUMINATE ave. 6.8 mm.

13. COLEOPTILE COLOR:

☐ 1 1 = WHITE 2 = RED 3 = PURPLE

14. SEEDLING ANTHOCYANIN:

☐ 2 1 = ABSENT 2 = PRESENT (slight)

15. JUVENILE PLANT GROWTH HABIT:

☐ 2 1 = PROSTRATE 2 = SEMI-ERECT 3 = ERECT

16. SEED:

☐ 1 Shape: 1 = OVATE 2 = OVAL 3 = ELLIPTICAL

☐ 1 Check: 1 = ROUNDED 2 = ANGULAR

☐ 2 Brush: 1 = SHORT 2 = ~~mid~~long 3 = LONG

☐ 1 Brush: 1 = NOT COLLARED 2 = COLLARED

☐ 4 Phenol reaction 1 = IVORY, 2 = FAWN 3 = LT. BROWN
(See instructions): 4 = BROWN 5 = BLACK

☐ 3 Color: 1 = WHITE 2 = AMBER 3 = RED 4 = PURPLE 5 = OTHER (Specify) _____

☐ 5 ☐ 9 MM. LENGTH ☐ 0 ☐ 3 MM. WIDTH ☐ 3 ☐ 2 GM. PER 1000 SEEDS

17. SEED CREASE:

☐ 1 Width: 1 = 60% OR LESS OF KERNEL 'WINOKA'
2 = 80% OR LESS OF KERNEL 'CHRIS'
3 = NEARLY AS WIDE AS KERNEL 'LEMHI'

☐ 1 Depth: 1 = 20% OR LESS OF KERNEL 'SCOUT'
2 = 35% OR LESS OF KERNEL 'CHRIS'
3 = 50% OR LESS OF KERNEL 'LEMHI'

18. DISEASE: (0 = Not Tested, 1 = Susceptible, 2 = Resistant) 3 = Moderate resistance 4 = Moderately susceptible

☐ 3 STEM RUST (Races) 15 & 151 ☐ 4 LEAF RUST (Races) Field Races ☐ 0 STRIPE RUST (Races) ☐ 0 LOOSE SMUT

☐ 0 POWDERY MILDEW ☐ 0 BUNT ☐ 2 OTHER (Specify) Soil Borne Mosaic Virus

19. INSECT: (0 = Not Tested, 1 = Susceptible, 2 = Resistant) 3 = Moderate resistance 4 = Moderately susceptible

☐ 0 SAWFLY ☐ 0 APHID (Bydv.) ☐ 1 GREEN BUG ☐ 0 CEREAL LEAF BEETLE

☐ 0 OTHER (Specify) _____ HESSIAN FLY
RACES: ☐ 3 GP ☐ 0 A ☐ 0 B ☐ 0 C
☐ 0 D ☐ 0 E ☐ 0 F ☐ 0 G

20. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED:

CHARACTER	NAME OF VARIETY	CHARACTER	NAME OF VARIETY
Plant tillering	Vona	Seed size	Vona
Leaf size	Vona	Seed shape	Vona
Leaf color	Vona	Coleoptile elongation	Vona
Leaf carriage	Vona	Seedling pigmentation	Vona

INSTRUCTIONS

GENERAL: The following publications may be used as a reference aid for the standardization of terms and procedures for completing this form:

(a) L.W. Briggie and L. P. Reitz, 1963, Classification of Triticum Species and Wheat Varieties Grown in the United States, Technical Bulletin 1278, United States Department of Agriculture.

(b) W.E. Walls, 1965, A Standardized Phenol Method for Testing Wheat Seeds for Varietal Purity, contribution No. 28 to the handbook of seed testing prepared by the Association of Official Seed Analysts. (See attachment.)

LEAF COLOR: Nickerson's or any recognized color fan should be used to determine the leaf color of the described variety.

Exhibit D

Additional Description of HR 64

HR 64 is a hard red winter wheat bred and developed by ^{NICKERSON} North American Plant Breeders Inc.. It was tested as the experimental numbers HW77-355B and NAPB 204.

HR 64 is an intermediate height semidwarf variety with good straw strength, intermediate maturity and fair winterhardiness. Milling and baking properties are good.

Juvenile plant growth habit is semi-erect. Plant color at boot is dark green with an erect, twisted flag leaf. Head shape is tapering to strap, middense, awned and head color is white at maturity. Glumes are short and of medium width with oblique shoulders and acuminate beaks. Seed shape is ovate with rounded cheeks. Seed crease width is narrow and depth is shallow.

HR 64 is adapted to Kansas, Oklahoma, southern Nebraska, Colorado and the irrigated wheat areas of the Ogallala aquifer from northern Texas to southern Nebraska.

2-5
superior
4/10/12/3/65

YEAR: 1982

North American Plant Breeders
HARD RED WINTER WHEAT QUALITY

PAGE 1

YEAR	SAMPLE NAME	LOC	WHEAT--FLOUR QUALITY										BAKING QUALITY										TOTAL SCORE
			TEST WT.	WHT PROT	FLR YLD	FLR PROT	FLR 14%mb	ASH	MIX CURVE	R	%	ABS.	MIX TIME	DOUGH CHAR	LOAF VOL	GRUMB			MILL SCORE	BAKE SCORE			
																GRN	TEX	COL					
																					R	R	
80	HW77-355B	CK	59.1	12.0	72.0	10.7	0.403	7		60.0	5.5	7	880	7	7	7	9	80-B	73-C	153-C			
81	NAPB 204	LK	53.8	13.9	70.1	13.1	0.447	9		65.0	4.0	7	950	7	9	9	9	82-B	90-A	172-B			
81	NAPB 204	HN	59.4	12.4	72.1	11.1	0.379	5		59.0	3.0	8	950	8	9	9	9	78-C	81-B	157-C			
	AVERAGE		57.4	12.8	71.4	11.6	0.409	7		61.3	4.2	7	927	7	8	9	9	80-B	82-B	162-B			
80	NEWTON	CK	59.8	12.3	70.9	11.3	0.456	8		62.0	5.0	8	895	7	7	9	9	81-B	80-B	161-B			
81	NEWTON	LK	56.8	13.5	69.8	12.3	0.449	7		62.0	3.0	9	1000+	8	9	9	9	78-C	90-A	168-B			
81	NEWTON	HN	59.9	11.5	70.4	10.5	0.339	6		59.0	3.5	8	875	8	8	9	9	72-C	78-C	150-C			
	AVERAGE		58.8	12.4	70.4	11.4	0.415	7		61.0	3.8	8	940	8	8	9	9	77-C	84-B	161-B			

GRADES: A-EXCELLENT B-GOOD C-ACCEPTABLE D-QUESTIONABLE F-UNACCEPTABLE
 R-RATINGS: 9-10=EXCELLENT 8-GOOD 7=ACCEPTABLE 5-6=QUESTIONABLE 1-4=UNACCEPTABLE

EXHIBIT E.

Statement of the Basis of Applicant's Ownership

Nickerson American Plant Breeders Inc. is the applicant for protection in this case being:

- a) the incorporated business (registered in Delaware) for and within which regular employees have bred the named variety.
- b) the proprietary owner and intending commercial user of the variety.